Massage Today
May, 2006, Vol. 06, Issue 05

Spotlight on Research: Massage Helps Improve Grip Performance, Recovery Time Following Exercise

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Editor's note: This periodic column keeps you abreast of the latest research documenting the benefits of massage and bodywork. Published research is summarized, with references to the full study text provided; abstracts of research projects planned or in progress are reproduced verbatim whenever possible.

Grip strength or "grip performance" is a general term used to describe the amount of power a person can generate with his or her hands.
While often overlooked, grip strength plays a significant role in the performance of athletes such as weightlifters, rock climbers, martial artists and others who rely on strong hands and forearms for athletic success. Of course, grip strength is beneficial to just about everyone in a variety of day-to-day situations, particularly tasks that involve lifting and/or carrying.

Although the effects of massage on increasing muscle performance and recovery time are well-known, the majority of studies that have examined massage and physical performance have focused on large muscle groups in the lower extremities. A new study published in the *Journal of Alternative and Complementary Medicine* evaluated the ability of manual massage to improve the performance of smaller muscle groups in the forearms and hands. The study found that a brief massage produces "greater effects" on grip performance after exercise, and helps fatigued muscles return to normal performance levels more quickly, compared to a placebo massage or no treatment.

In the study, researchers recruited 52 healthy volunteers (39 female, 13 male; average age 39 years) from a suburban allied health school. Forty-nine of the patients were right-handed; 58 percent exercised at least three times per week. After baseline measurements were taken, each patient was subjected to up to three

minutes of maximal exercise, using a commercial isometric hand exercise machine that fatigued each subject's grip performance to 60 percent of his or her baseline strength. The exercise protocol was performed on the subject's non-intervention hand first to familiarize the patients with the exercise equipment and to measure natural muscle recovery times.

Following the exercise and a five-minute rest period, grip power measurements were taken on the non-intervention hand with a commercial hand dynamometer to compare them with baseline. The entire procedure was then repeated on the other hand, with one of four interventions performed immediately after grip performance fatigued to 60 percent of baseline:

- five minutes of hand/forearm massage of effleurage and circular friction to the person's dominant hand;
- five minutes of hand/forearm massage to the nondominant hand;
- five minutes of shoulder and elbow range of motion; or
- five minutes of no treatment.

All treatments were delivered by senior therapeutic massage students experienced in providing massages to the public. Final measurements were taken following exercise, the intervention and a five-minute rest period using the same dynamometer. For all measurements, subjects sat in a standardized measurement position, with the test shoulder adducted and neutrally rotated, elbow flexed at 90 degrees, forearm in neutral, and the wrist in slight extension and ulnar deviation, with the dynamometer facing away from the patient.

Results/Conclusion

According to the researchers, the effect of manual massage on grip performance "was greater than no massage or than placebo" after the occurrence of fatigue. Interestingly, massage appeared to have a greater effect on recovery on the nondominant-hand group than the dominant-hand group. The authors stated that while this finding "demonstrates limited influence of massage on stronger, highly conditioned muscle," it also indicates that the effects of massage "may be more easily demonstrated in untrained versus conditioned muscle."

In addition, the researchers found there was less natural muscle recovery measured in the groups who received massage compared to the shoulder/elbow group and the no-treatment group. This suggested that in the period immediately following isometric exercise, "the effects of massage are greater than the effect of

natural muscle recovery alone."

While previous studies examining the effects of manual massage on muscle performance have presented differing conclusions, the *JACM* study utilized several methods to ensure the validity of the testing procedures, including a standardized massage protocol, measurement of only one outcome, and the use of placebo and control groups for comparison. As a result, the authors felt firm in their conclusion that massage was effective in improving grip power and helping fatigued muscles recover more quickly:

"This is the first study to show that massage can improve immediate grip performance after fatigue in healthy adults. Furthermore, even though natural muscle recovery affects overall muscle performance up to five minutes after fatigue, the effects of massage are greater than with natural muscle recovery alone. Finally, differences in natural muscle recovery between the dominant and non-dominant hand may also influence the effects of massage after exercise in healthy subjects. Following this preliminary assessment, it is suggested that future prospective studies be designed to determine post-exercise differences in natural muscle recovery between dominant and non-dominant hands of healthy individuals and to ascertain the effects on response to massage."

Reference

1. Brooks CP, Woodruff LD, Wright LL, et al. The immediate effects of manual massage on power-grip performance after maximal exercise in healthy adults. *Journal of Alternative and Complementary Medicine* December 2005;11(6):1093-1101.